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# Appendix A

## Department of Energy Scoping Letters

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## Department of Energy

Golden Field Office  
1617 Cole Boulevard  
Golden, Colorado 80401-3305

July 20, 2007

TO: Distribution List

SUBJECT: Notice of Scoping – Range Fuels Proposed Commercial Scale Thermochemical Cellulosic Ethanol Plant, Soperton, Georgia

The U.S. Department of Energy (DOE) is proposing to provide up to \$76 Million to Range Fuels for the construction and operation of a commercial scale thermochemical cellulosic ethanol plant near the town of Soperton, Georgia in Treutlen County. Pursuant to the requirements of the National Environmental Policy Act (NEPA), the Council on Environmental Quality regulations for implementing the procedural provisions of NEPA (40 CFR Parts 1500-1508), and DOE's implementing procedures for compliance with NEPA (10 CFR Part 1021), DOE is preparing a draft Environmental Assessment (EA) to:

- Identify any adverse environmental effects that cannot be avoided should this proposed action be implemented.
- Evaluate viable alternatives to the proposed action, including a no action alternative.
- Describe the relationship between local short-term uses of the environment and the maintenance and enhancement of long-term productivity.
- Characterize any irreversible and irretrievable commitments of resources that would be involved should this proposed action be implemented.

The proposed plant would be located on approximately 160 acres. The site is located approximately 2 miles northwest of Soperton off GA Highway 29 and bordered by Old Dairy Farm Road to the east and Commerce Drive to the south. (See Exhibit 1 Project Location Map attached). The majority of the site is located within a currently designated Industrial Park. The previous owner of the industrial park had cleared the site of timber except for a buffer around the existing wetlands and installed fire and sewer utilities. The coordinates of the approximate center-point of the site are 32° 24' 10" North, 82° 37' 13" West (NAD27).

Prior to being zoned as an industrial park by the Treutlen County Development Authority, the proposed site was historically used for cotton production and pine tree plantations. All surrounding property is currently either planted in pine for future harvest or farmland planted in crops. The closest residential property is located in the southeast corner of the site at the intersection of Dairy Farm and County Road 94 approximately 1,500 feet from the proposed location of the facility on the site.

The proposed facility would be expected to operate up to 350 days per year (8,400 hours per year) and would produce up to 100,000,000 gallons per year (approximately 286,000 gallons per day) of fuel-grade ethanol and up to 20,000,000 gallons per year (approximately 57,000 gallons





per day) of methanol through the use of a proprietary conversion technology. The feedstock for this process would be up to 875,000 dry tons per year (2,500 dry tons per day) of biomass consisting primarily of plantation grown wood and wood waste products from Treutlen County and the surrounding area. Pine plantations in the area have been harvested and replanted sustainably for many generations and forest resource stewardship is a core value of the state and local community. The total footprint of the proposed plant would be approximately 60 acres within the 160 acre site. The project has been planned and sited to maximize conservation of existing wetlands and forest. Construction of the facility will not impact wetlands onsite. Exhibit 4 details the proposed site layout.

The Georgia Environmental Protection Division (EPD) has issued Air Quality Permit No. 2869-283-0005-S-01-0 for the construction and operation of the facility. Total modeled air emissions for the installation meet requirements for classification as a Minor Source under 40 CFR 52.21. The following additional environmental permits are currently in process of being obtained:

- USACE CWA Section 404 Nationwide Permit (NWP) for modification of an existing culvert: Submit application late July 2007, Permit Issuance expected early September 2007.
- Notice of Intent (NOI) for Georgia General NPDES Storm Water Permit due to Construction Activities: Submit early August 2007, Expected Permit coverage granted late August 2007
- Industrial Waste Water Pre-Treatment Discharge Permit: Submit application early August 2007, Expected Permit issued late August 2007

The following is a summary description of the process that the plant would use:

The Range Fuel plant will employ biomass converters and catalytic syngas converters to produce fuel-grade ethanol as well as smaller amounts of methanol and higher molecular weight alcohols. The biomass converters will convert wood into a gaseous mixture of CO and H<sub>2</sub> (synthesis gas or syngas) with a small amount of inert solid material (ash) remaining. The raw syngas will be subjected to a number of cleanup and compression steps before being sent through the catalytic syngas converters.

Wood feedstocks will be chipped either in the field at their point of origin or at the site. If chipped in the field, the feedstock will be delivered to the site as woodchips via truck. If chipped at the site, raw feedstocks will be chipped and transferred to a storage area. From the storage area, chips will be conveyed to the Conversion step which consists of sequential stages (Stage 1 and Stage 2) sections within a Conversion Unit. Chipping, storage, and wood processing operations are planned for a site north of and adjacent to the plant site (see Exhibit 1) that will provide a route for trucks delivering wood that is buffered and routed away from any homes in the area.

Natural gas will be used as a startup fuel, switching to syngas or tail gas once it can be generated on a sustained basis. All heating within the Conversion Units occurs indirectly, and there will be no direct contact between the wood chips and a burner flame. The chips are continuously



conveyed through the Stage 1 sections where they will be indirectly heated to volatilize constituent organics and other components. The chips will then be fed to the Stage 2 section of the Conversion Unit where the temperature will be further increased to reform some of the remaining carbon and hydrocarbons. Air emissions from Conversion Units will be controlled with Catalytic Oxidizers.

After passing through Stage 2 of the Conversion Unit, the ash will be removed from the exit stream by process cyclones and bag filters. The ash will then be cooled and pneumatically conveyed to ash hoppers then to a truck loadout for disposal. Tests will be performed to determine the suitability of the inorganic minerals contained in the ash for land application as a soil amendment. The remaining stream will be quenched and separated into syngas, water, and a liquid hydrocarbon stream. The liquid hydrocarbon stream will be returned to the Stage 2 section of the Conversion Unit for recycle. Quench water will be used to lower the raw syngas temperature and scrub (remove) any remaining solids or liquid hydrocarbons from the raw syngas. The syngas will then be filtered and dewatered before compression prior to alcohol synthesis.

After the raw syngas is compressed, it will be further treated to remove CO<sub>2</sub> and volatile organics. For CO<sub>2</sub> removal, a scrubbing process utilizing an absorption tower followed by a stripping tower will be employed. Volatile organics will be removed with a scrubber. The recovered organics from the syngas stream will be returned to the Conversion Units for further processing.

Converting the syngas to alcohol will be performed through the use of a catalytic, exothermic reaction, resulting in the generation of substantial heat during the conversion process. This heat will be used in the Converter Units to reduce syngas usage. The cleaned syngas will be fed through a series of catalytic syngas converters. The synthesis products will then be cooled and sent to the distillation units for separation. Some un-reacted gases will be recycled back through the catalysts for further conversion with the remaining un-reacted gases combusted as tail gas in the Conversion Units.

The crude liquid alcohol stream produced by the alcohol synthesis process is a mixture of ethanol and methanol, with smaller amounts of higher molecular weight alcohols (propanol through pentanol), water, and minor amounts of other reaction byproducts. A series of distillation columns will separate the crude alcohol stream into purified methanol, ethanol, higher molecular weight alcohols and water streams. The re-boilers on each of the distillation columns will be steam heated.

After distillation, the methanol will be transferred to storage tanks in preparation for loading into tanker trucks or railcars. The wet ethanol will be sent through molecular sieve dryers to remove excess moisture with the water being sent to an onsite wastewater treatment plant for treatment prior to reuse or, when of acceptable quality, discharged to the sewer and the ethanol being sent to storage tanks in preparation for loading into tanker trucks or railcars. The higher molecular weight alcohols will be pumped to an onsite storage tank prior to sale and shipment offsite or recycled back into the process.

The methanol generated on-site will be sold as product. Ethanol and methanol will be shipped by truck or rail to marketing terminals throughout the southeast. Four loadout racks, two for trucks and two for rail cars, will be utilized to dispense the liquid products into either the trucks or railcars. Both truck and rail loadout rack operations will use controls to minimize VOC/HAP emissions.

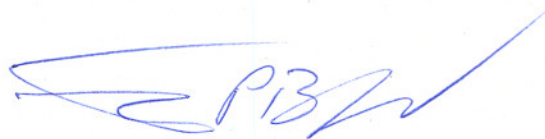
Wastewater streams will be managed through a number of on-site recycling and wastewater treatment processes. Process water will be discharged into the sewer upon meeting acceptable quality standards during early stages of startup and operations, then processed on-site and recycled during later stages. Sanitary water will be discharged to the sewer. More detailed information about Range Fuels is available online at <http://www.rangefuels.com>.

As part of the process for determining the scope of issues related to the proposed action, we request your comments and any other information that you can identify as important. We request your comments by August 13<sup>th</sup>, 2007. If you have any comments regarding the enclosed, please direct them to:

Kristin Kerwin  
DOE NEPA Document Manager  
1617 Cole Blvd.  
Golden, Colorado 80401  
[kristin.kerwin@go.doe.gov](mailto:kristin.kerwin@go.doe.gov)

We look forward to hearing from you. You will also be given the opportunity to review and comment on the Draft Environmental Assessment when it is available.

Sincerely,



Steve Blazek  
Department of Energy  
NEPA Compliance Officer

Enclosure



# Exhibit 1: Project Location Map

